

In the Claims

Applicant has submitted a new complete claim set showing marked up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing.

Please amend pending claims 1 and 6 as noted below. Support for the amendments to claims 1 and 6 can be found, for example, in the claim as originally filed, at page 30, lines 19-23, at page 33, lines 7-11, and at page 2, lines 17-18. No new matter has been added.

1. (Currently amended) A method of magnetically manipulating a chemical or biological agent comprising:
- magnetically drawing a magnetically recruitable first article and a first chemical or biological agent immobilized relative ~~thereto~~ to the first article to a first location and drawing a second article to a second location; and
- selectively magnetically releasing the first article from the first location or releasing the second article from the second location while holding the second or first article, respectively, at its respective location.

2. (Original) A method as in claim 1, wherein the first chemical or biological agent is a drug candidate.

- * 3. (Original) A method as in claim 1, wherein the first agent is linked to a binding partner thereof.

- ✓ 4. (Original) A method as in claim 1, wherein the first article is a magnetic article.

- ✓ 5. (Original) A method as in claim 4, wherein each of the first and second articles is a magnetic bead.

6. (Currently Amended) A method as in claim 3, comprising magnetically drawing the first article to the first location and magnetically drawing the second article to the second location; and

selectively magnetically releasing the second article from the second location while holding the first article at the first location.

7. (Original) A method as in claim 6, wherein the first and second locations are first and second predetermined areas of a surface, respectively.

8. (Original) A method as in claim 7, wherein an electromagnet is associated with each of the first and second predetermined surface areas, positioned to draw the first or second article to the first or second predetermined surface area, respectively.

9. (Original) A method as in claim 7, wherein each of the first and second predetermined surface areas comprises an electrode.

10. (Original) A method as in claim 9, wherein each of the predetermined surface areas comprises an electrode, and an electromagnet is associated with each of the first and second predetermined surface areas, positioned to draw the first or second article to the first or second predetermined surface area, respectively.

11. (Original) A method as in claim 6, the first article immobilized to a signaling entity that is immobilized relative to the binding partner.

12. (Original) A method as in claim 11, the first article carrying the first agent fastened thereto, a binding partner of the first agent linked to the first agent, and the signaling entity immobilized relative to the binding partner.

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13. (Original) A method as in claim 12, wherein the first article comprises a magnetic bead, and a colloid particle is linked to the binding partner, and the second article comprises a magnetic bead carrying a second chemical or biological agent immobilized thereto.

14. (Original) A method as in claim 13, wherein the signaling entity is the colloid particle.

15. (Original) A method as in claim 13, wherein the colloid particle includes an auxiliary signaling entity immobilized relative thereto.

16. (Original) A method as in claim 15, wherein the signaling entity is a metallocene fastened to the colloid particle.

17. (Original) A method as in claim 16, wherein each of the predetermined surface areas comprises an electrode, and an electromagnet is associated with each of the first and second predetermined surface areas, positioned to draw the first or second article to the first or second predetermined surface area, respectively.

18. (Original) A method as in claim 16, wherein the metallocene is ferrocene.

19. (Original) A method as in claim 16, wherein the first article comprises a magnetic bead, and a colloid particle is linked to the binding partner, and the second article comprises a magnetic bead carrying a second chemical or biological agent immobilized thereto.

20. (Original) A method as in claim 18, wherein each of the first and second agents is a candidate drug.

21. (Original) A method as in claim 18, wherein the drawing step is carried out in the presence of a candidate drug, and each of the first and the second agents is a potential target of the candidate drug.

22. (Original) A method as in claim 3, comprising:

providing a plurality of magnetic beads each carrying a chemical or biological agent immobilized relative thereto;

exposing the beads to a plurality of colloid particles each carrying a potential binding partner of the chemical or biological agents;

allowing some of the colloid particles to bind to some of the magnetic beads via chemical or biological agent/binding partner interaction while leaving some of the magnetic beads free of linkage to colloid particles;

magnetically drawing the magnetic beads to a plurality of predetermined locations at a surface;

determining first surface locations at which colloid particles have been drawn and second surface locations substantially free of colloid particles; and

releasing magnetic beads from the second surface locations while holding magnetic beads at the first surface locations.

23. (Original) A method as in claim 22, further comprising removing magnetic particles released from the vicinity of the second surface locations; and

repeating one or more times the steps of magnetically drawing, determining, and releasing.

24. (Original) A method as in claim 22, further comprising:

removing magnetic particles released from the vicinity of the first and second surface locations;

releasing magnetic beads from the first surface locations; and

repeating one or more times the steps of magnetically drawing, determining, and releasing.

25. (Original) A method as in claim 24, further comprising, prior to the repeating step: adding fluid to dilute particles released from the first surface locations.

26. (Original) A method as in claim 23, comprising detecting the presence of colloid particles at surface locations visually.
27. (Original) A method as in claim 23, comprising detecting the presence of colloid particles at surface locations by electromagnetically stimulating a metallocene linked to the colloid.
28. (Original) A method as in claim 22, comprising detecting the presence of colloid particles at surface locations by electromagnetically stimulating a metallocene linked to the colloid.
29. (Original) A method as in 24, further comprising identifying at least one first chemical or biological agent.

REMARKS

Claims 1-29 were previously pending in this application. By this amendment, claims 1 and 6 have been amended. As a result claims 1-29 are pending for examination with claim 1 being an independent claim. No new matter has been added.

Telephonic Interview

The applicants appreciate the telephone interview accorded the undersigned today. This amendment addresses the January 5, 2004 office action and includes, among other things, those substantive points discussed during the telephone interview regarding the applicants' position regarding patentability of the pending claims. The applicants are not aware of any substantive points (e.g., outside of interview scheduling/availability/etc.) discussed during the interview that are not contained in this amendment. Accordingly, this amendment constitutes a complete written statement of the reasons presented at the interview as warranting favorable action, as may be required by 37 C.F.R. §1.133.

Rejections under 35 U.S.C. §112

Claims 1-29 have been rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim subject matter which Applicant regards as the invention. Specifically, the Office Action found that claim 1 is indefinite because the preamble seems to be incomplete. Claim 1 has been amended to recite, in part, "a method of magnetically manipulating a chemical or biological agent comprising...." It is noted that this amendment inserts, into the preamble, a description of the overall recitation that already exists in the claim and therefore in no way narrows the claim. Withdrawal of the rejection is respectfully requested.

Claim 1 has also been found to be indefinite for reciting "magnetically drawing a first article ... and second article" because the Examiner feels that the first and second articles are not defined as comprising any magnetic means. Claim 1 has been amended to state that the first article is magnetically recruitable. This amendment clarifies what is an inherent requirement of the article, and thus in no way narrows the claim. Withdrawal of the rejection is respectfully requested.

Claim 1 has also been amended to recite, "immobilized relative to the first article," rather than "immobilized relative thereto," because of an objection by the examiner, although the applicant does not agree that this wording was in any way indefinite. It is noted that this amendment in no way narrows the claim.

The Office Action also found claim 4 to be indefinite. In a telephone interview with the Examiner of July 6, 2004, the Examiner pointed out that the rejection should be directed to claim 3, not claim 4. Thus, the rejection will be addressed specifically with respect to claim 3.

Applicant believes that there is nothing indefinite about the wording of claim 3. Claim 1, as amended, states, in part, "magnetically drawing a magnetically recruitable first article and a first chemical or biological agent immobilized relative to the first article" Claim 3, depending from claim 1, recites, in part, that "the first agent is linked to a binding partner thereof." Thus, claim 1 states that the first article is immobilized relative to the agent. Claim 3 states that the agent is linked to a binding partner. The Applicant fails to see how one skilled in the art could consider claim 3 to be indefinite. That is, one skilled in the art would understand what is being claimed; would understand the metes and bounds of the invention as claimed, which is what is required under 35 U.S.C. §112, second paragraph. The fact that there are several ways in which the first article, the agent and the binding partner could be linked or immobilized relative to each other does not, in itself, render the claim indefinite. Withdrawal of the rejection is respectfully requested.

Claim 9 was rejected as being indefinite because it was found to be unclear as to how the electrode could draw a magnetic bead to its surface. The Examiner appears to feel that if a particle is magnetically drawn to a surface area, then that surface area *must* be a magnet. The basis for this conclusion is not presented, nor is it understood. The Examiner is directed to examples of other arrangements in the specification, for example, those in which a magnet (which can be a permanent magnet, an electromagnet, etc.) is positioned near an electrode that defines a portion of a surface, and can be used to draw an article to that portion of the surface (see Fig. 6 and related description). Withdrawal of the rejection is respectfully requested.

Claims 11 and 12 were found to be unclear because the Examiner found that the signaling entity could be immobilized to the binding partner or the first article. While there are multiple ways in which the signaling entity could be immobilized relative to the binding partner, this fact

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does not render either of claims 11 or 12 indefinite. The term "immobilized relative to" is defined in the specification. A component that is "immobilized relative to" another component either is fastened to the other component or is indirectly fastened to the other component. See page 7, line 25 to page 8, line 2. Thus, the Applicant believes the claims are clear as pending. Withdrawal of the rejection is respectfully requested.

Rejections under 35 U.S.C. §102

Claims 1-12 are rejected under 35 U.S.C. §102(e) as being anticipated by Zhou et al., U.S. Patent No. 6,355,491 (Zhou). Zhou discloses a device having electromagnetic chips and electromagnetic biochips having arrays of individually addressable microelectromagnetic units. The electromagnetic biochip units are individually addressable and include ligand molecules immobilized on their surfaces. Under the influence of a magnetic field generated by a selectively addressable microelectromagnetic unit, a magnetically modified target molecule can be caused to move toward the biochip surface and to undergo an affinity binding reaction with ligand molecules immobilized in the designated unit regions. See Zhou at column 18, line 62 – column 19, line 2. Target molecules are separated from the magnetic microbeads. Separation of target molecules from magnetic microbeads can be accomplished by photocleavage, enzymatic digestion, chemical cleavage or a cleavable linker, etc.

As amended, claim 1 recites, in part, "selectively magnetically releasing the first article from the first location or releasing the second article from the second location while holding the second or first article, respectively, at its respective location." Applicant fails to see where Zhou discloses selectively magnetically releasing an article from a first or second location while holding the second or first article, respectively, at its respective location. Thus, claim 1, as amended, is patentable over Zhou. As claims 2-29 depend either directly or indirectly from claim 1, they are patentable for at least the above-mentioned reason. Withdrawal of this rejection is respectfully requested.

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CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,
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